Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 18-25 and 28-36 are pending in the application, with claims 18 and 31 being the independent claims.

Claims 18, 28, 30, 31, 33, and 34 are amended herein to recite a "plurality of packaged product units." Support can be found, for example, in the first paragraph of page 1 of the specification as filed.

Claims 18 and 31 are amended to recite the ice slurry is injected back into treatment tank "with sufficient force so that the ice slurry exiting the at least one injection nozzle recirculates between the plurality of packaged product units." Support for these amendments can be found, for example, in the third full paragraph of page 7 of the specification as filed.

These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendments and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections of Claims 18-25, 28-30, and 35

Claims 18, 20, and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,116,043 to Clark *et al.* ("Clark") in view of U.S.

Patent No. 6,216,469 to Miller and in further view of U.S. Patent No. 4,912,935[1] to Goldstein (" '935 Goldstein"). Claims 19, 21, 22, 24, 25, 28-30, and 35 are also rejected under 35 U.S.C. § 103(a) as being unpatentable over Clark in view of Miller and in further view of '935 Goldstein and in further view of one or more additional documents. Applicant respectfully traverses these rejections.

Independent claim 18 is directed to a method for tempering a plurality of packaged product units in a treatment tank. The method comprises:

> placing the plurality of packaged product units in the treatment tank, wherein the treatment tank comprises an overflow trough located at an upper part of the treatment tank;
>
> introducing an ice slurry comprising water and ice particles into the treatment tank to submerge the plurality of packaged product units; and
>
> circulating the ice slurry in the treatment tank around the plurality of packaged product units in order to cool the plurality of packaged product units, wherein an upper level of the ice slurry flows into the overflow trough, is pumped through a pipe connected to the overflow trough and injected back into the treatment tank through at least one injection nozzle with sufficient force so that the ice slurry exiting the at least one injection nozzle recirculates between the plurality of packaged product units.

Clark, Miller and '935 Goldstein, either alone or in combination, fail to disclose or render obvious the claimed invention.

[1] It is noted that the Office Action refers to U.S. Patent No. 6,301,904 to Goldstein. However, the Examiner confirmed in the phone conversation of November 15, 2010 that the Office Action should have referred to U.S. Patent No. 4,912,935 to Goldstein.

I. There Would Have Been No Expectation for Success That the System of Clark Would Circulate an Ice Slurry

Clark is directed to a food processing apparatus wherein liquid 22 in a tank 16 is recirculated by pumping liquid 22 exiting tank 16 through a drain 32, located at the bottom of tank 16, back into tank 16 through nozzle 28 at the top of tank 16. See Fig. 1. Liquid 22 is not an ice slurry.

The Examiner relies on Miller to cure the deficiency of Clark not disclosing circulating an ice slurry by asserting it would have been obvious to one of ordinary skill in the art at the time the invention was made to have coil 24 generate ice that would mix with liquid 22 and recirculate. However, such a modification to Clark would not have been obvious because there would not have been a reasonable expectation of success.

In particular, Clark has a perforated diffuser wall 20 that acts as a filter to protect the pump from foreign debris from the food in tank 16 or broken pieces of food casings. See col. 4, lines 32-36. Thus, diffuser wall 20 would also act to filter ice particles present in an ice slurry and would prevent the ice particles from passing through diffuser wall 20 and clogging the pump and recirculation unit. Therefore, the ice slurry would be prevented from circulating.

Assuming, for arguments sake, that large ice particles would not pass through diffuser wall 20, but that small ice particles would pass through diffuser wall 20 as asserted by the Examiner in the Advisory Action mailed December 1, 2010, the small ice particles would be insufficient in size to generate sufficient cooling of a plurality of packaged product units with the recirculated ice slurry.

For at least the above reasons, one of ordinary skill in the art would not have had a reasonable expectation of success that the proposed modification of Clark would circulate an ice slurry. Accordingly, a *prima facie* case of obviousness has not been established.

II. The Proposed Combination Would Not Lead to the Ice Slurry Being Injected Back Into the Treatment Tank With Sufficient Force so That the Ice Slurry Exiting the at Least One Injection Nozzle Recirculates Between the Plurality of Packaged Product Units

Claim 18, as amended herein, recites that the ice slurry is injected back into the treatment tank "with sufficient force so that the ice slurry exiting the at least one injection nozzle recirculates between the plurality of packaged product units." It is necessary that the injection be of sufficient force so that the ice slurry can move between and/or move apart potentially tightly clustered packaged product units to ensure the recirculated ice slurry contacts all surfaces of the packaged product units to ensure uniform cooling.

Clark and Miller rely on cooling coils that act as a refrigeration unit to chill the water in a tank, thus any packaged product units in the tank are cooled through the cold energy generated from the cooling coils. However, the claimed invention relies on recirculation of an ice slurry added to a tank to cool packaged product units. In order to constantly chill the water in the tank through the cooling coils to create an ice slurry requires 333 calories of energy per liter of water to solidify water into ice. This is a significant expenditure of energy. The present invention minimizes the amount of energy needed by recirculating the ice slurry added to the tank. Thus, the present invention is more efficient.

As noted previously, there would have been no expectation of success for circulating an ice slurry in Clark. Thus, the proposed combination would fail to inject an ice slurry back into the treatment tank "with sufficient force so that the ice slurry exiting the at least one injection nozzle recirculates between the plurality of packaged product units," and therefore would not realize the energy efficiency of the claimed invention. Accordingly, a *prima facie* case of obviousness cannot be established.

III. There is Insufficient Reasoning to Modify Clark to Circulate an Ice Slurry Present in an Overflow Trough Located at an Upper Part of the Treatment Tank Back Into the Treatment Tank

In addition, Clark recirculates liquid 22 from the bottom of tank 16 back into tank 16 through nozzle 28 at the top of tank 16. This is opposite to the claimed circulation wherein ice slurry present in an overflow trough located at an upper part of the treatment tank is pumped through a pipe and injected back into the treatment tank. Further, while Clark discloses an overflow tube 134 to allow excess liquid to drain from the tank and into a bottom drain or sump 138 (see col. 6, lines 39-41), Clark provides no disclosure or rationale for circulating the excess liquid back into tank 16. Miller does not cure this deficiency of Clark. The Examiner relies on '935 Goldstein to cure this deficiency of Clark.

While the Examiner relies on '935 Goldstein to cure the deficiency noted above in Clark, one of ordinary skill in the art would not have had a sufficient reason to modify Clark (as modified by Miller) in view of Goldstein to arrive at the claimed invention. In particular, '935 Goldstein discloses scraping ice bed 17, 17A, or 17' into ice outlet 40, 40A, or 40' at an upper part of a tank. Thus ice outlet 40, 40A, or 40' contains only ice, not an ice slurry (i.e., a combination of water and ice particles). Rather, water is

introduced to the ice stream through pipe 42, 50A or 50' to form an ice slurry that is circulated into the tank. Thus, at best Goldstein suggests removing ice from an upper part of a tank and then adding water to it downstream of the ice outlet to form an ice slurry to circulate in the tank. However, claim 18 recites that the ice slurry present in an overflow trough located at an upper part of the treatment tank is pumped through a pipe connected to the overflow trough and injected back into the treatment tank.

Since, '935 Goldstein does not suggest circulating ice slurry present in an overflow trough located at an upper part of a treatment tank is injected back into the treatment tank, '935 Goldstein would not provide one of ordinary skill in the art at the time the invention was made sufficient reasoning to modify the combination of Clark and Miller as proposed by the Examiner to reverse the direction of the recirculated stream. There is no reason one of ordinary skill in the art would reverse the flow direction of the recirculated stream of the combination of Clark and Miller absent impermissible hindsight. The Examiner's reliance on common knowledge discussed in the Advisory Action mailed December 1, 2010 fails to address why one of ordinary skill in the art would reverse the flow direction of the recirculated stream of Clark and Miller. Accordingly a *prima facie* case of obviousness has not be established.

IV. Modifying the System of Clark with the Features of '935 Goldstein Would Destroy the Ability of Clark to Function for its Intended Purpose

In addition, Clark is directed to a system that can serve as both a refrigerator and a heater. See col. 3, lines 48-51. In order to modify Clark to perform the recited circulating of the claim 18 (i.e., circulating the ice slurry in the treatment tank around the at least one packaged product unit in order to cool the at least one packaged product unit,

wherein the ice slurry present in an overflow trough located at an upper part of the treatment tank is pumped through a pipe connected to the overflow trough and injected back into the treatment tank through at least one injection nozzle) in light of '935 Goldstein, it would be necessary to incorporate the features of '935 Goldstein. In particular, it would be necessary for Clark to have ice bed 17, 17A, or 17' of '935 Goldstein and the associated scraper. Such a modification to Clark would unnecessarily complicate the system of Clark and would destroy the intended function of Clark because it would result in the system of Clark only being able to function as a refrigerator, and not a heater as well. Accordingly, one of ordinary skill in the art would have had no reason to modify Clark if it would destroy the ability of Clark to function for its intended purpose. Thus, a *prima facie* case of obviousness has not been established.

For at least the above reasons, independent claim 18, and claims 19-25, 28-30, and 35 which depend therefrom, are allowable. Accordingly, Applicant respectfully requests that these rejections be reconsidered and withdrawn, and the claims allowed.

Rejections of Claims 31-34 and 36

Claims 31, 32, and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Clark in view of '935 Goldstein. Claims 33 and 34 are also rejected under 35 U.S.C. § 103(a) as being unpatentable over Clark in view '935 Goldstein and in further view of an additional document. Applicant respectfully traverses these rejections.

Independent claim 31 is directed to a system for tempering a plurality of packaged product units utilizing an ice slurry comprising water and ice particles. The system comprises:

at least one treatment tank for submerging the at least one packaged product unit, wherein the at least one treatment tank comprises an upper part with an overflow trough;

at least one injection nozzle;

a pipe connecting the overflow trough and the at least one injection nozzle; and

a pump associated with the pipe for pumping ice slurry present in the overflow trough through the pipe and injecting the ice slurry back into the at least one treatment tank through the least one injection nozzle with sufficient force so that the ice slurry exiting the at least one injection nozzle recirculates between the plurality of packaged product units in order to cool the at least one packaged product unit.

Clark and '935 Goldstein, either alone or in combination, fail to disclose or render obvious the claimed invention.

I. There Would Have Been No Expectation for Success That the System of Clark Would Circulate an Ice Slurry

Clark is directed to a food processing apparatus wherein liquid 22 in a tank 16 is recirculated by pumping liquid 22 exiting tank 16 through a drain 32, located at the bottom of tank 16, back into tank 16 through nozzle 28 at the top of tank 16. See Fig. 1. This is opposite to the claimed circulation wherein ice slurry present in an overflow trough located at an upper part of the treatment tank is pumped to through a pipe and injected back into the treatment tank. Further, while Clark discloses an overflow tube 134 to allow excess liquid to drain from the tank and into a bottom drain or sump 138 (see col. 6, lines 39-41), Clark provides no disclosure or rationale for circulating the excess liquid back into tank 16.

The Examiner relies on Goldstein to cure this deficiency of Clark. However, such a modification to Clark would not have been obvious because there would not have been a reasonable expectation of success. In particular, Clark has a perforated diffuser

wall 20 that acts as a filter to protect the pump from foreign debris from the food in tank 16 or broken pieces of food casings. See col. 4, lines 32-36. Thus, diffuser wall 20 would also act to filter ice particles present in an ice slurry and prevent the ice particles from passing through diffuser wall 20. Therefore, the ice slurry would be prevented from circulating.

Assuming, for arguments sake, that large ice particles would not pass through diffuser wall 20, but that small ice particles would pass through diffuser wall 20 as asserted by the Examiner in the Advisory Action mailed December 1, 2010, the small ice particles would be insufficient in size to generate sufficient cooling of a plurality of packaged product units with the recirculated ice slurry.

For at least the above reasons, one of ordinary skill in the art would not have had a reasonable expectation of success that the proposed modification of Clark would circulate an ice slurry. Accordingly, a *prima facie* case of obviousness has not been established.

II. The Proposed Combination Would Not Lead to the Ice Slurry Being Injected Back Into the Treatment Tank With Sufficient Force so That the Ice Slurry Exiting the at Least One Injection Nozzle Recirculates Between the Plurality of Packaged Product Units

Claim 31, as amended herein, recites that the ice slurry is injected back into the treatment tank "with sufficient force so that the ice slurry exiting the at least one injection nozzle recirculates between the plurality of packaged product units." It is necessary that the injection be of sufficient force so that the ice slurry can move between and/or move apart potentially tightly clustered packaged product units to ensure the

recirculated ice slurry contacts all surfaces of the packaged product units to ensure uniform cooling.

Clark relies on cooling coils that act as a refrigeration unit to chill the water in a tank, thus any packaged product units in the tank are cooled through the cold energy generated from the cooling coils. However, the claimed invention relies on recirculation of an ice slurry added to a tank to cool packaged product units. In order to constantly chill the water in the tank through the cooling coils to create an ice slurry requires 333 calories of energy per liter of water to solidify water into ice. This is a significant expenditure of energy. The present invention minimizes the amount of energy needed by recirculating the ice slurry added to the tank. Thus, the present invention is more efficient.

As noted previously, there would have been no expectation of success for circulating an ice slurry in Clark. Thus, the proposed combination would fail to inject an ice slurry back into the treatment tank "with sufficient force so that the ice slurry exiting the at least one injection nozzle recirculates between the plurality of packaged product units," and therefore would not realize the energy efficiency of the claimed invention. Accordingly, a *prima facie* case of obviousness cannot be established.

III. Modifying the System of Clark with the Features of '935 Goldstein Would Destroy the Ability of Clark to Function for its Intended Purpose

In addition, Clark is directed to a system that can serve as both a refrigerator and a heater. See col. 3, lines 48-51. In order to modify Clark to perform the recited function of the claim 31 (i.e., pumping ice slurry present in the overflow trough through

the pipe and injecting the ice slurry back into the at least one treatment tank through the least one injection nozzle so as to circulate the ice slurry in the at least one treatment tank around the at least one packaged product unit in order to cool the at least one packaged product unit) in light of '935 Goldstein, it would be necessary to incorporate the features of '935 Goldstein. In particular, it would be necessary for Clark to have ice bed 17, 17A, or 17' of '935 Goldstein and the associated scraper. Such a modification to Clark would unnecessarily complicate the system of Clark and would destroy the intended function of Clark because it would result in the system of Clark only being able to function as a refrigerator, and not a heater as well. Accordingly, one of ordinary skill in the art would have had no reason to modify Clark if it would destroy the ability of Clark to function for its intended purpose. Thus, a *prima facie* case of obviousness has not been established.

For at least the above reasons, independent claim 31, and claims 32-34 and 36 which depend therefrom, are allowable. Accordingly, Applicant respectfully requests that these rejections be reconsidered and withdrawn, and the claims allowed.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

John T. Haran
Attorney for Applicant
Registration No. 58,010

Date: December 17, 2010

1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600
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